

1/24 IAP20 Rec'd PCT/PTO 03 MAR 2006

## SCD DNA Sequence (SEQ ID NO:1)

gtgggtgtcgg	tgtcggcagc	atccccggcg	ccctgctgcg	gtcgcggag	ccctcggcct	60
ctgtttctcct	ccccctcccg	cccttacctc	cacgcgggac	cgcccgcgcc	agtcaactcc	120
tcgcactttg	ccctgtcttg	gcagcggata	aaagggggct	gaggaaafac	cggacacgtc	180
cacccggttg	cagctctagc	ctttaaattc	ccggctcggg	acctccacgc	accgggctag	240
cgccgacaac	cagctagcgt	gcaaggcgcc	gcggctcagc	gcgtaccggc	gggcttcgaa	300
accgcagtc	tccggcgacc	ccgaactccg	ctccggagcc	tcagccccct	ggaaagtgat	360
cccggcacgc	gagagccaag	atgccggccc	acttgctgca	ggacgatatc	tctagctcct	420
ataccaccac	caccaccatt	acagcgccct	cctccagggg	cctgcagaat	ggaggagata	480
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gaaacatcat	ccttatgtct	ctgctacact	tgggagccct	gtatgggac	actttgatcc	660
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aaagcnaggt	aaattgtcgg	gggagagagt	tagcatgtat	gaatgtaagg	atgagggaag	2040
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tccagtttct	ccttgaaatg	agtaaaaact	agaaggcttc	tctccacagt	gttgtgcccc	2880
ttcactcatt	tttttttgag	gagaaggggg	tctctgttaa	catctagcct	aaagtataca	2940
aactgcctgg	ggggcagggt	taggaatctc	ttcactaccc	tgattcttga	ttcctggctc	3000

FIGURE 1

REST AVAILABLE COPY

taccctgtct	gtcccttttc	tttgaccaga	tctttctctt	ccctgaacgt	tttcttcttt	3060
ccctggacag	gcagcctcct	ttgtgtgtat	tcagaggcag	tgatgacttg	ctgtccaggc	3120
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gccagacaaa	atttgagaat	acataaacia	cgcattgcca	cggaaacata	cagaggatgc	5160
cttttctgtg	attgggtggg	attttttccc	tttttatgtg	ggatatagta	gttactttgtg	5220
acaagaataa	ttttggaata	atttctatta	atatcaactc	tgaagctaata	tgtactaatc	5280
tgagattgtg	tttggttcata	ataaaagtga	agtgaatctg	attgcactg		5329

FIGURE 1 (CONT.)

## CA12 DNA Sequence (SEQ ID NO:2)

gtactcgcca	cggcaccacag	gctgcgcgca	cgcggtccccg	gtgtgcagct	ggagagcgag	60
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ccggcgcagc	ctgcacgcgg	cggccgtgct	cctgctgggtg	atcttaaagg	aacagccttc	180
cagcccggcc	ccagtgaacg	gttccaagtg	gacttatttt	ggtcctgatg	gggagaatag	240
ctggtccaag	aagtaccggt	cgtgtggggg	cctgctgcag	tccccatag	acctgcacag	300
tgacatcctc	cagtatgacg	ccagcctcac	gccccctcag	ttccaaggct	acaatctgtc	360
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cgagctgcac	attgtccatt	ataactcaga	cctttatcct	gacgccagca	ctgccagcaa	600
caagtacaaa	ggcctcgctg	tcctggctgt	tctcattgag	atgggctcct	tcaatccgtc	660
ctatgacaag	actttcagtc	accttcaaca	tgtaaagtac	aaaggccagg	aagcattcgt	720
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ggacgacctt	tccccagag	aaatgatcaa	caacttccgg	cagggtccaga	agttcgatga	960
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agtaagccaa	ggtcatgcca	ctgcactcta	gcctgggtga	cagagcgaga	ctccatctca	2760
aaaaaaaaaa	aaaaa					2775

FIGURE 2

## PIK3R4 DNA Sequence (SEQ ID NO:3)

gcacgagggg	agttcggcgt	ttgctggggc	tgcagcagct	gaagtgtagt	gttttcttgg	60
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caaaggccaa	tatagtggac	cagagccatc	ttcatgatag	tagtcagaaa	ggtgtaattg	3000

FIGURE 3

acttggcagc	tttaggcata	actgggagac	aagttgatct	tgttaaaacc	aaacaagaac	3060
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catctgataa	tgggtgctgtc	cagcttcttg	gaattgaggc	ttctaagctg	cccaagtctc	3780
ctaaaatcca	tcctctacaa	agcagaattc	tagatcagaa	ggaggacggt	tgtgtttgtg	3840
atatgcatca	cttcaactct	ggagcacagt	ctgttcttgc	ctatgccact	gtgaatggct	3900
ctcgtgttgg	ctgggacctt	aggctcttcaa	gcaatgcgtg	gactttaaag	catgatttaa	3960
agtcgggcct	catcacttcc	tttgctgtgg	acatccacca	atgctggctc	tgcattggta	4020
caagcagtgg	taccatggct	tgttgggaca	tgaggttcca	gttgccaatt	tcaagtcact	4080
gtcatccttc	cagggctcga	atcagacgcc	tctcaatgca	ccctctgtat	cagtcctggg	4140
tgattgcagc	tgttcagggc	aacaacgaag	tgtccatgtg	ggacatggag	actggtgaca	4200
gaagattttac	tctctggggc	agcagtgcac	caccactttc	tgaattacag	ccttctcctc	4260
atagcgtcca	tggatatctac	tgtagtctctg	cagatggaaa	tcctatccta	ctaacagctg	4320
gctcagatat	gaaaataagg	ttttgggact	tggcttacct	agaaaggtec	tatgttgttg	4380
caggaagtac	tagttcccca	tctgtgtcct	actacaggaa	aataattgaa	ggcactgaag	4440
ttgtccagga	aattcagaat	aagcagaaag	taggaccaag	tgatgacacc	cctcgaaggg	4500
gccagagtc	cctgcccgtg	ggacatcatg	acatcatcac	tgatgtcgcc	acattccaga	4560
ccacacaggg	cttcatcgta	actgcttcta	gagatgggat	tgtgaagggtg	tggaaaataaa	4620
acctactgat	ttgtataaat	tttaatagtt	ataaatataa	tactataact	cgagaaaagg	4680
catttctaga	gaacagattc	atttgcttaa	ttttcaaaat	tatgtctcca	tattactggt	4740
tcattgactga	ctgactaaat	gacacccaaa	atgggttaaga	tgtacttgac	tagtttactt	4800
atgcatctct	ttgcaagaat	cagccagcca	acaatgtctg	ggatttttat	tgtatatggt	4860
atagaggtga	gaaatgtaaa	atatgaaaat	gaatatgttt	attttgtatt	gaaaaagatg	4920
gttgaaaaga	tggttgtaag	ctattatagt	ataaacacat	ttttgctatt	aaaaatgcta	4980
ttcaaagcag	ttaaactgta	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaac	5040
tcgagggggg	gcccgggtacc					5060

FIGURE 3 (CONT.)

## PLD3 DNA Sequence (SEQ ID NO:4)

ctctttataa	tttagtttcc	atagaagtta	tatgtgcatt	taaaaaaatt	caatgctgga	60
gcgaccgtgt	ctggggagcc	gagccccgct	tctcgctgcg	gtgagcccgg	actggggcac	120
gcaactgcga	gactccccgc	tgcaagtggc	ggagtcccac	aggccccgcc	cctcctccca	180
ccctcgttca	gcctgtccag	acagaagctg	gggccccagc	gaggtagcag	cagacgcctg	240
agagcgaggc	cgaggccctc	agggtttgga	gaccctgaca	caccacacct	ctcacctggg	300
ctctgcgtat	cccccagcct	tgagggaaga	tgaagcctaa	actgatgtac	caggagctga	360
aggtgcctgc	agaggagccc	gccaatgagc	tgcccatgaa	tgagattgag	gcgtggaagg	420
ctgcggaaaa	gaaagcccgc	tgggtcctgc	tggtcctcat	tctggcggtt	gtgggcttcg	480
gagcctgatg	actcagctgt	ttctatggga	atacggcgac	ttgcatctct	ttggggcccaa	540
ccagcgccca	gccccctgct	atgacccttg	cgaagcagtg	ctgggtggaaa	gcattcctga	600
gggcctggac	ttccccaatg	cctccacggg	gaacccttcc	accagccagg	cctgggtggg	660
cctgctcgcc	ggtgcgcaca	gcagcctgga	catcgccctc	ttctactgga	ccctcaccaa	720
caatgacacc	cacacgcagg	agccctctgc	ccagcagggt	gaggagggtcc	tccggcagct	780
gcagaccctg	gcaccaaagg	gcgtgaacgt	ccgcacgcct	gtgagcaagc	ccagcgggcc	840
ccagccacag	gcggacctgc	aggctctgct	gcagagcggt	gcccagggtcc	gcattggtgga	900
catgcagaag	ctgaccccat	gcgtcctgca	taccaagttc	tgggtggtgg	accagaccca	960
cttctacctg	ggcagtgcc	acatggactg	gcgttcactg	accagggtca	aggagctggg	1020
cgtggtcatg	tacaactgca	gctgcctggc	tcgagacctg	accaagatct	ttgaggccta	1080
ctggttcctg	ggccaggcag	gcagctccat	cccatcaact	tggccccggg	tctatgacac	1140
ccgctacaac	caagagacac	caatggagat	ctgcctcaat	ggaacccttg	ctctggccta	1200
cctggcgagt	gcgccccccac	ccctgtgtcc	aagtggccgc	actccagacc	tgaaggctct	1260
actcaacgtg	gtggacaatg	cccgaggttt	catctacgtc	gctgtcatga	actacctgcc	1320
cactctggag	ttctcccacc	ctcacagggt	ctggcctgcc	attgacgatg	ggctgcggcg	1380
ggccacctac	gagcgtggcg	tcaagggtgc	cctgtctcat	agctgctggg	gacactcgga	1440
gccatccatg	cgggccttcc	tgtctctctc	ggctgcccct	cgtgacaacc	ataccacctc	1500
tgacatccag	gtgaaactct	ttgtgggtcc	cgcggatgag	gccagggtcc	gaatcccata	1560
tgcccgtgtc	aaccacaaca	agtacatggt	gactgaacgc	gccacctaca	tcggaacctc	1620
caactggtct	ggcaactact	tcacggagac	ggcgggcacc	tcgctgctgg	tgacgcagaa	1680
tgggaggggc	ggcctgcgga	gccagctgga	ggccattttc	ctgagggact	gggactcccc	1740
ttacattcat	gaccttgaca	cctcagctga	cagcgtgggc	aacgcctgcc	gcctgctctg	1800
aggccccgat	cagtgggcag	gccaaaggct	gctggggccc	cgcggaccca	ggtgctctgg	1860
gtcacggctc	ctgtccccgc	acccccgctt	ctgtctgccc	cattgtggct	cctcaggctc	1920
tctcccctgc	tctcccacct	ctacctccac	ccccaccggc	ctgacgctgt	ggccccggga	1980
cccagcagag	ctgggggagg	gatcagcccc	caaagaaatg	ggggtgcatg	ctggcctgcc	2040
ccctggccca	cccccacttt	ccagggcaaa	aaggggcccag	ggttataata	agtaaataac	2100

ttgtctgtaa aaaaaaaaaa aaaaaaaaaa a

FIGURE 4

## HSPD1 DNA Sequence (SEQ ID NO:5)

ggcacgagge	gacgacctgt	ctcgccgagc	gcacgccttg	ccgccgcccc	gcagaaatgc	60
ttcggttacc	cacagtcttt	cgccagatga	ga'ccgggtgc	cagggtactg	gctcctcatc	120
tcactcgggc	ttatgccaaa	gatgtaaaa	ttggtgcaga	tgcccagagc	ttaatgcttc	180
aagggtgtaga	ccttttagcc	gatgctgtgg	ccgttacaat	ggggccaaag	ggaagaacag	240
tgattattga	gcagagttgg	ggaagtccca	aagtaacaaa	agatggtgtg	actgttgcaa	300
agtcaattga	cttaaaagat	aaatacaaaa	acattggagc	taaacttggt	caagatgttg	360
ccaataacac	aaatgaagaa	gctgggggatg	gcactaccac	tgctactgta	ctggcacgct	420
ctatagccaa	ggaaggcttc	gagaagatta	gcaaagggtgc	taatccagtg	gaaatcagga	480
gaggtgtgat	gttagctgtt	gatgctgtaa	ttgctgaact	taaaaagcag	tctaaacctg	540
tgaccacccc	tgaagaaatt	gcacaggttg	ctacgatttc	tgcaaacgga	gacaaagaaa	600
ttggcaatat	caatctctgat	gcaatgaaaa	aagttggaag	aaaggggtgc	atcacagtaa	660
aggatggaag	aacactgaat	gatgaattag	aaattattga	aggcatgaag	tttgatcgag	720
gctatatattc	tccatacttt	attaatacat	caaaagggtca	gaaatgtgaa	ttccaggatg	780
cctatgtttc	gttgagtga	aagaaaattt	ctagtatcca	gtccattgta	cctgctcttg	840
aaattgccaa	tgctcaccgt	aagcctttgg	tcataatcgc	tgaagatgtt	gatggagaag	900
ctctaagtac	actcgtcttg	aataggctaa	aggttggctc	tcaggttggtg	gcagtcaagg	960
ctccagggtt	tggtgacaat	agaaagaacc	agcttaaaga	tatggctatt	gctactgggtg	1020
gtgcagtgtt	tggagaagag	ggattgaccc	tgaatcttga	agacgttcag	cctcatgact	1080
taggaaaagt	tggagaggtc	attgtgacca	aagacgatgc	catgctctta	aaaggaaaag	1140
gtgacaaggc	tcaaattgaa	aaacgtattc	aagaaatcat	tgagcagtta	gatgtcacia	1200
ctagtgaata	tgaaaaggaa	aaactgaatg	aacggcttgc	aaaactttca	gatggagtgg	1260
ctgtgctgaa	ggttggtggg	acaagtgatg	ttgaagtga	tgaaaagaaa	gacagagtta	1320
cagatgccct	taatgctaca	agagctgctg	ttgaagaagg	cattgttttg	ggaggggggt	1380
gtgccctcct	tcgatgcatt	ccagccttgg	actcattgac	tccagctaat	gaagatcaaa	1440
aaattggtat	agaaattatt	aaaagaacac	tcaaaattcc	agcaatgacc	attgctaaga	1500
atgcagggtg	tgaaggatct	ttgatagtgg	agaaaattat	gcaaagttcc	tcagaagttg	1560
gttatgatgc	tatggctgga	gattttgtga	atatggtgga	aaaaggaatc	attgacccaa	1620
caaaggttgt	gagaactgct	ttattggatg	ctgctgggtg	ggcctctctg	ttactacag	1680
cagaagttgt	agtcacagaa	attcctaaag	aagagaagga	ccctggaatg	ggtgcaatgg	1740
gtggaatggg	aggtggtatg	ggaggtggca	tgttctaact	cctagactag	tgctttacct	1800
ttattaatga	actgtgacag	gaagcccaag	gcagtgttcc	tcaccaataa	cttcagagaa	1860
gtcagttgga	gaaaatgaag	aaaaaggctg	gctgaaaatc	actataacca	tcagttactg	1920
gtttcagttg	acaaaatata	taatggttta	ctgctgtcat	tgtccatgcc	tacagataat	1980
ttatttttga	tttttgaata	aaaaacattt	gtacattcct	gatactgggt	acaagagcca	2040
tgtaccagtg	tactgctttc	aacttaaate	actgaggcat	ttttactact	attctgttaa	2100
aatcaggatt	ttagtgcctg	ccaccaccag	atgagaagtt	aagcagcctt	tctgtggaga	2160
gtgagaataa	ttgtgtacaa	agtagagaag	tatccaatta	tgtgacaacc	tttgtgtaat	2220
aaaaatttgt	ttaaagttaa	aaaaaaaaaa	aaaaaaaaaa			2258

FIGURE 5

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ZPK Variant 2 DNA Sequence (SEQ ID NO:6)

agcatccgga	gcggagetgc	agcagcgccg	ccttttgtgc	tgcggccgcg	gagccccga	60
gggcccagtg	ttcaccatca	taccaggggc	cagaggcgat	ggcttgcctc	catgagaccc	120
gaacaccctc	tccttccttt	gggggctttg	tgtctaccct	aagtgaggca	tccatgcgca	180
agctggaccc	agacattctt	gactgcactc	ccgagaagga	cctgacgcct	acccatgtcc	240
tgcagctaca	tgagcaggat	gcagggggcc	cagggggagc	agctgggtca	cctgagagtc	300
gggcatccag	agttcgagct	gacgaggtgc	gactgcagtg	ccagagtggc	agtggcttcc	360
ttgagggcct	ctttggctgc	ctgcgccttg	tctggaccat	gattggcaaa	gcctactcca	420
ctgagcacia	gcagcagcag	gaagaccttt	gggaggtccc	ctttgaggaa	atcctggacc	480
tgcagtgggt	gggctcaggg	gcccaggggt	ctgtcttcct	ggggcgcttc	cacggggagg	540
aggtggctgt	gaagaaggtg	cgagacctca	aagaaaccga	catcaagcac	ttgcgaaagc	600
tgaagcacc	caacatcatc	actttcaagg	gtgtgtgcac	ccaggctccc	tgctactgca	660
tcctcatgga	gttctgcgcc	cagggccagg	tgtatagggt	actgcgggct	ggcgccctg	720
tcacccctc	cttactgggt	gactgggtcca	tgggcatcgc	tgggtggcatg	aactacctgc	780
acctgcacia	gattatccac	agggatctca	agtcacccaa	catgctaate	acctacgacg	840
atgtggtgaa	gatctcagat	tttggcactt	ccaaggagct	gagtgcacaag	agcaccaaga	900
tgtcctttgc	agggacagta	gcctggatgg	cccctgaggt	gatccgcaat	gaacctgtgt	960
ctgagaaggt	cgacatctgg	tcctttggcg	tgggtgctatg	ggaactgctg	actggtgaga	1020
tcctctacaa	agacgtagat	tcctcagcca	ttacttgggg	tgtgggaagc	aacagtctcc	1080
atctgcccg	gcctccaggt	tgcccagatg	gtttcaagg	cctgcttcgc	cagtgtggga	1140
atagcaaacc	acgaaatcgc	ccatcattcc	gacagatcct	gctgcatctg	gacattgcct	1200
cagctgatgt	actctccaca	ccccaggaga	cttactttta	gtcccaggca	gagtggcggg	1260
aagaagtaaa	actgcacttt	gaaaagatta	agtcagaagg	gacctgtctg	caccgcctag	1320
aagaggaact	ggtgatgagg	aggagggagg	agctcagaca	cgccctggac	atcagggagc	1380
actatgaaag	gaagctggag	agagccaaca	acctgtatat	ggaacttaat	gccctcatgt	1440
tgcagctgga	actcaaggag	agggagctgc	tcaggcgaga	gcaagcttta	gagcggagggt	1500
gcccaggcct	gctgaagcca	caccttccc	ggggcctcct	gcatggaaac	acaatggaga	1560
agcttatcaa	gaagaggaat	gtgccacaga	agctgtcacc	ccatagcaaa	aggccagata	1620
tcctcaagac	ggagtctttg	ctccctaaac	tagatgcagc	cctgagtggg	gtggggcttc	1680
ctgggtgtcc	taaggccccc	ccctcaccag	gacggagtcg	ccgtggcaag	accgctcacc	1740
gcaaggccag	cgccaagggg	agctgtgggg	acctgcctgg	gcttcgtaca	gctgtgccac	1800
cccatgaacc	tggaggacca	ggaagcccag	ggggcctagg	agggggaccc	tcagcctggg	1860
aggcctgccc	tccegccttc	cgtgggcttc	atcatgacct	cctgctccgc	aaaatgtctt	1920
catcgtccccc	agcctgctg	tcagcagcac	tagggctccc	gggcccgggg	ggccagggcg	1980
gagctgggga	tcctggctca	ccacctccgg	ccgggggtga	cacccaccca	agtgagggct	2040
cagcccttgg	ctccaccagc	ccagattcac	ctgggggagc	caaaggggaa	ccacctcctc	2100
cagtagggcc	tgggtgaagg	gtggggcttc	tgggaactgg	aagggaagg	acctcaggcc	2160
ggggaggaag	ccgggctggg	tcctcagcact	tgacccagc	tgcactgctg	tacagggctg	2220
ccgtcaccgc	aagtcagaaa	cgtggcatct	catcggaaga	ggaggaaggga	gaggtagaca	2280
gtgaagtaga	gctgacatca	agccagaggt	ggcctcagag	cctgaacatg	cgccagtcac	2340
tatctacctt	cagctcagag	aatccatcag	atggggagga	aggcacagct	agtgaacctt	2400
ccccagtg	cacacctgaa	gttggcagca	ccaacactga	tgagcgcca	gatgagcggt	2460
ctgatgacat	gtgctcccag	ggctcagaaa	tcctactgga	cccacctcct	tcagagggtca	2520
tccttggtcc	tgaaccacgc	tccttgccca	ttccacacca	ggaacttctc	agagagcggg	2580
gccctcccaa	ttctgaggac	tcagactgtg	acagcactga	attggacaac	tccaacagcg	2640
ttgatgcctt	gcggccccc	gcttccctcc	ctccatgaaa	gccactcgta	ttccttgtac	2700
atagagaaat	atttatatgg	atttatatata	tatacatata	tatatatata	tgcgccacat	2760
aatcaacaga	aagatggggc	tgtcccagcc	gtaagtcagg	ctcgagggag	actgatcccc	2820
tgaccaattc	acctgataaa	ctctagggac	actggcagct	gtggaaatga	atgaggcaca	2880
gccgtagagc	tgtggctaag	ggcaagcccc	ttcctgcccc	acccatttcc	ttatatccag	2940
caagcaacaa	ggcaatagaa	aagccagggg	tgtctttata	ttcttttatcc	ccaaataata	3000
gggggtgggg	ggagggggcg	tgggaggggc	aggagagaaa	accacttaga	ctgcactttt	3060
ctgttccggt	tactctgttt	acacattttg	cacttggggg	gagggagggt	aaggctgggt	3120
cctccctctc	gaggtttctc	aggtggcaat	gtaactcatt	tttttgtccc	accattttatc	3180
ttctctgccc	aagccctgtc	ttaaggccca	gggggagggt	aggagactga	tagcatgtga	3240
tggctcagcc	tgaagaaccg	gggtgctgtt	taagtccttg	cttttatcct	ggtgcctgat	3300
tggggtgggg	actgtcctac	tgtaaacctt	gtgaaaaacc	ttgaaatata	acactccatg	3365
cagga						

FIGURE 6



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### SCD Amino Acid Sequence (SEQ ID NO:7)

MPAHLQDDI	SSSYTTTTTI	TAPPSRVLQN	GGDKLETMPL	YLEDIRPDI	KDDIYDPTYK	60
DKEGPSKVE	YVWRNIILMS	LLHLGALYGI	TLIPTCKFYT	WLWGVFYYFV	SALGITAGAH	120
RLWSHRSYKA	RLPLRLFLII	ANTMAFQNDV	YEWARDHRAH	HKFSETHADP	HNSRRGFFFS	180
HVGWLLVRKH	PAVKEKGSTL	DLSDLEAEKL	VMFQRRYYKP	GLLLMCFILP	TLVPWYFWGE	240
TFQNSVFBAT	FLRYAVVLNA	TWLVNSAAHL	FGYRPPYDKNI	SPRENILVSL	GAVGEGFHNY	300
HHSFPYDYS	SEYRWHINFT	TFFIDCMAAL	GLAYDRKKVS	KAAILARIKR	TGDGNYKSG	359

FIGURE 7

### CA12 Amino Acid Sequence (SEQ ID NO:8)

MPRRSLHAAA	VLLLVLILKEQ	PSSPAPVNGS	KWTFYFGPDGE	NSWSKKYPSC	GGLLQSPIDL	60
HSDILQYDAS	LTPLEFQGYN	LSANKQFLLT	NNGHSVKNL	PSDMHIQGLQ	SRYSATQLHL	120
HWGNPNDPHG	SEHTVSGQHF	AAELHIVHYN	SDLYPDASTA	SNKSEGLAVL	AVLIEMGSFN	180
PSYDKIFSHL	QHVKYKGQEA	FVPGFNIEEL	LPERTAERYR	YRGLTTPPC	NPTVLWTVFR	240
NPVQISQEQ	LALETALYCT	HMDDPSPREM	INNFRQVQKF	DERLVYTSFS	QVQVCTAAGL	300
SLGIILSLAL	AGILGICIV	VVSIWLFRRK	SIKKGDNKG	IYKPKATMET	EAHA	354

FIGURE 8

### PIK3R4 Amino Acid Sequence (SEQ ID NO:9)

MGNQLAGIAP	SQILSVESYF	SDIHDFEYDK	SLGSTFFKV	ARAKHREGLV	VVKVFAIQDP	60
TLPLTSYKQE	LEELKIRLNS	AQNCLPFQKA	SEKASEKAAM	LFRQYVRDNL	YDRISTRPFL	120
NNIEKRWIAF	QILTAVDQAH	KSGVRHGDIK	TENVMTSWN	WVLLTDFASF	KPTYLPEDNP	180
ADFNFFDTS	RRRTCXYAPE	RFVDGGMFAT	ELEYMRDPST	PLVDLNSNQR	TRGELKRAMD	240
IFSAGCVIAE	LFTEGVPLFD	LSQLLAYRNG	HFFPEQVLNK	IEDHSIRELV	TQMIHREPDK	300
RLEAEDYLKQ	QRGNAPPEIF	YTFLQPYMAQ	FAKETFLSAD	ERILVIRKDL	GNIIHNLCSH	360
DLPEKAEGEP	KENGLVILVS	VITSCLQTLK	YCDSKLAAL	LILHLAPRLS	VEILLDRITP	420
YLLHFSNDSV	PRVRAEALRT	LTKVLALVKE	VPRNDINIYP	EYILPGIAHL	AQDDATIVRL	480
AYAENIALLA	ETALRFLELV	QLKNLNMEND	PNNEEIDEVT	HPNGNYDTEL	QALHEMVQOK	540
VVTLLSDPEN	IVKQTLMEG	ITRLCVFFGR	QKANDVLLSH	MITFLNDKND	WHLRGAFFDS	600
IVGVAAYVGW	QSSSILKPLL	QQGLSDAEFF	VIVKALYALT	CMCQLGLLQK	PHVYEFASDI	660
APFLCHPNLW	IRYGAVGFIT	VVARQISTAD	VYCKLMPYLD	PYITQPIIQI	ERKLVLVSVL	720
KEPVRSIFD	YALRSKDITS	LFRHLHMRQK	KRNGSLPDCP	PPEDPAIAQL	LKKLLSQGMT	780
EEEEEDKLLAL	KDFMMKSNKA	KANIVDQSHL	HDSSQKGVID	LAALGITGRQ	VDLVKTKQEP	840
DDKRARKHVK	QDSNVNEEWK	SMFGSLDPPN	MPQALPKGSD	QEVITQTKPP	RSESSAGICV	900
PLSTSSQVPE	VTTVQNKPKV	IPVLSSTILP	STYQIRITTC	KTELQQLIQQ	KREQCNAERI	960
AKQMMENAWE	ESKPPPPGWR	PKGLLVLAHL	EHKSAVNRIR	VSDEHSLFAT	CSNDGTVKIW	1020
NSQKMEGKTT	TTRSILTYSR	IGGRVKTLTF	CQGSYLAIA	SDNGAVQLLG	IEASKLPKSP	1080
KIHPLQSRIL	DQKEDGCVVD	MHHFNSGAQS	VLAYATVNGS	LVGWDLRSSH	NAWTLKHDLK	1140
SGLITSFAVD	IHCWCICIGT	SSGTMACWDM	RFQLPISSHC	HPSRARIRRL	SMHPLYQSWV	1200
IAAVQGNNEV	SMWDMETGDR	RFTLWASSAP	PLSELQPSPH	SVHGIYCSPA	DGNPILLTAG	1260
SDMKIRFWDL	AYPERSYVVA	GSTSSPSVSY	YRKIIIEGTEV	VQEIQNKQKV	GPSDDTPRRG	1320
PESLPVGHHD	IITDVATFQT	TQGFIVTASR	DGIVKVWK			1358

FIGURE 9

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### PLD3 Amino Acid Sequence (SEQ ID NO:10)

MTQLFLWEYG	DLHLFGPNQR	PAPCYDPCEA	VLVESIPEGL	DFPNASTGNP	STSQAWLGLL	60
AGAHSSLDIA	SFYWTLTNND	THTQEPSAQQ	GEEVLRQLQT	LAPKGVNVRI	AVSKPSGPQP	120
QADLQALLQS	GAQVRMVDQM	KLTHGVLHTK	FWVVDQTHFY	LGSANMDWRS	LTQVKELGVV	180
MYNCSCLARD	LTKIFEAYWF	LQQAGSSIPS	TWPRFYDTRY	NQETPMEICL	NGTPALAYLA	240
SAPPPLCPSP	RTPDLKALLN	VVDNARSFIY	VAVMNYLPTL	EFSPHPRFWP	AIDDLRRAT	300
YERGVKVRLL	ISCWGHSEPS	MRAFLLSLAA	LRDNHTHSDI	QVKLFVVPAD	EAQARIPYAR	360
VNHNKYMVTE	RATYIGTSNW	SGNYFTETAG	TSLLVTQNGR	GGLRSQLEAI	FLRDWDSPYI	420
HDLDTSADSV	GNACRL					437

FIGURE 10

### HSPD1 Amino Acid Sequence (SEQ ID NO:11)

MLRLPTVFRQ	MRPVSRLAP	HLTRAYAKDV	KFGADARALM	LQGVDDLADA	VAVTMGPKGR	60
TVIIEQSWGS	PKVTKDGVTV	AKSIDLKDKY	KNIGAKLVQD	VANNTNEEAG	DGTTTATVLA	120
RSIAKEGFKE	ISKGANPVEI	RRGVMLAVDA	VIAELKKQSK	PVTTPEEIAQ	VATISANGDK	180
EIGNIISDAM	KKVGRKGVIT	VKDGTKLNDE	LEIIEGMKFD	RGYISPYFIN	TSKGQKCEFQ	240
DAYVLLSEKK	ISSIQSIVPA	LEIANAHKRP	LVIIAEDVDG	EALSTLVNLR	LKVGQLQVAV	300
KAPGFGDNRK	NQLKDMAIAT	GGAVFGEEGL	TLNLEDVQPH	DLGKVGIVIV	TKDDAMLLKG	360
KGDKAQIEKR	IQEIIIEQLDV	TTSEYEKEKL	NERLAKLSDG	VAVLKVGSGT	DVEVNEKKDR	420
VTDALNATRA	AVEEGIVLGG	GCALLRCIPA	LDLSTPANED	QKIGIEIIKR	TLKIPAMTIA	480
KNAGVEGSLI	VEKIMQSSSE	VGYDAMAGDF	VNMVEKGIID	PTKVVRTALL	DAAGVASLLT	540
TAEEVVTEIP	KEEKDPGMGA	MGMGGGGMGG	GMF			573

FIGURE 11

### ZPK Variant 2 Amino Acid Sequence (SEQ ID NO:12)

MACLHETRTP	SPSFGGFVST	LSEASMRKLD	PDTSDCTPEK	DLTPTHVLQL	HEQDAGGPGG	60
AAGSPESRAS	RVRADDEVRLQ	CQSGSGFLEG	LFGCLRPVWT	MIGKAYSTEH	KQQQEDLWEV	120
PFEEILDQW	VGSGAQGAVF	LGRFHGEEVA	VKKVRDLKET	DIKHLRKLKH	PNIITFKGVC	180
TQAPCYCILM	EFCAGGQLYE	VLRAGRPVTP	SLLVDWSMGI	AGGMNYLHLH	KIIHRDLKSP	240
NMLITYDDVV	KISDFGTSKE	LSDKSTKMSF	AGTVAWMAPE	VIRNEPVSEK	VDIWSFGVVL	300
WELLTGEIPY	KDVDSSAIW	GVGSNSLHLP	VPSSCPDGFK	ILLRQCWNSK	PRNRPSFRQI	360
LLHLDIASAD	VLSTPQETYF	KSQAEWREEV	KLHFEEKIKSE	GTCLHRLEEE	LVMRRREELR	420
HALDIREHYE	RKLERANNLY	MELNALMLQL	ELKERELLRR	EQALERRCPG	LLKPHPSRGL	480
LHGNTMEKLI	KKRNVQKLS	PHSKRPDILK	TESLLPKLDA	ALSGVGLPGC	PKAPSPGRS	540
RRGKTRHRKA	SAKGSCGDL	GLRTAVPPHE	PGGPGSPGGL	GGGPSAWEAC	PPALRGLHHD	600
LLLRKMSSSS	PDLLSAALGS	RGRGATGGAG	DPGSPPPARG	DTPPSEGSAP	GSTSPDSPGG	660
AKGEPPPPVG	PGEVGLLGT	GREGTSGRGG	SRAGSQHLTP	AALLYRAAVT	RSQKRGISSE	720
EEEGEVDSEV	ELTSSQRWPQ	SLNMRQSLST	FSSNPSPDGE	EGTASEPSPS	GTPEVGSTNT	780
DERPDERSDD	MCSQGSEIPL	DPPPSEVIPG	PEPSSLPIPH	QELLRERGPP	NSESDCDST	840
ELDNSNSVDA	LRPPASLPP					859

FIGURE 12

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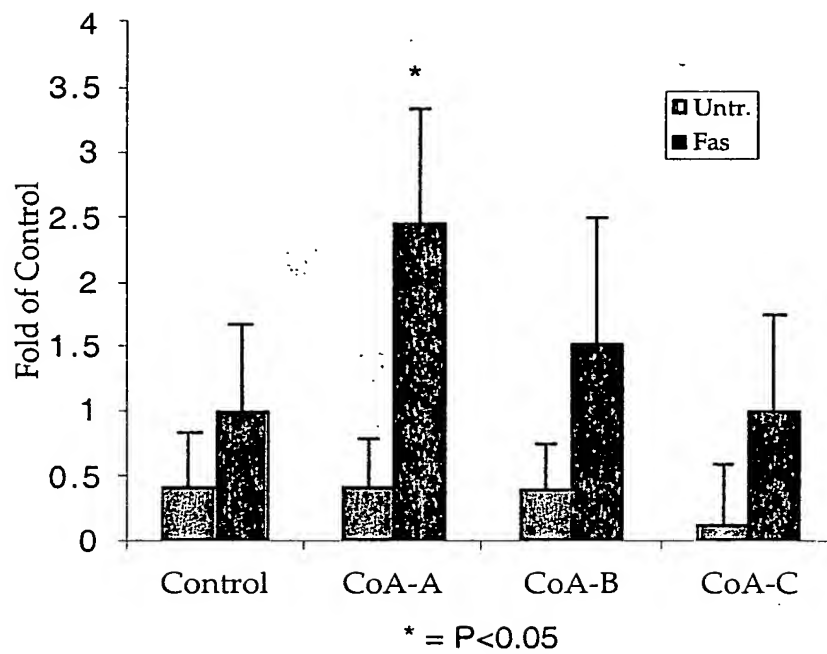


FIGURE 13A

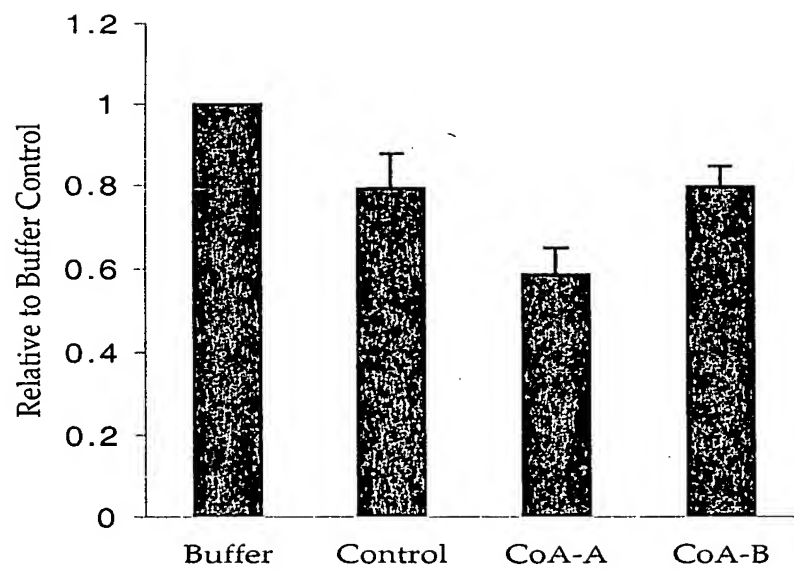


FIGURE 13B

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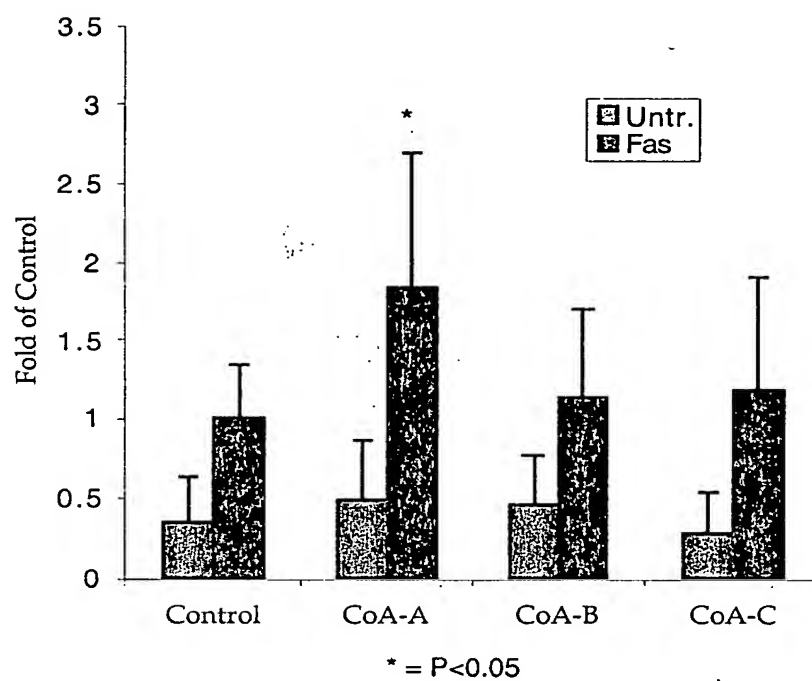


FIGURE 14A

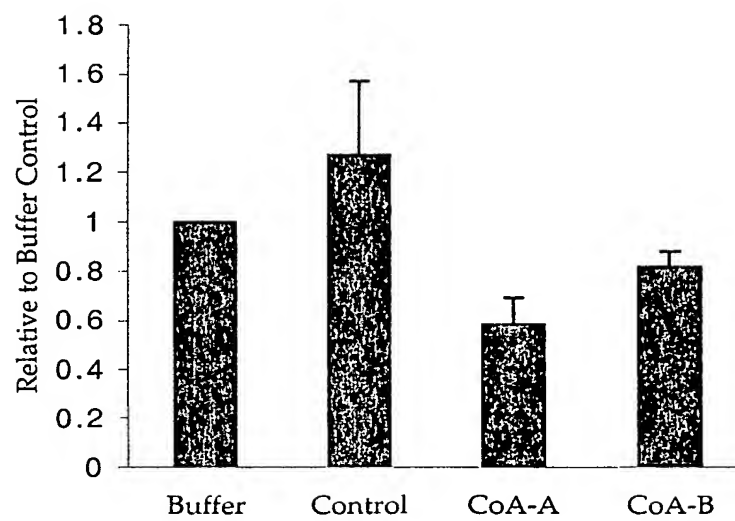


FIGURE 14B

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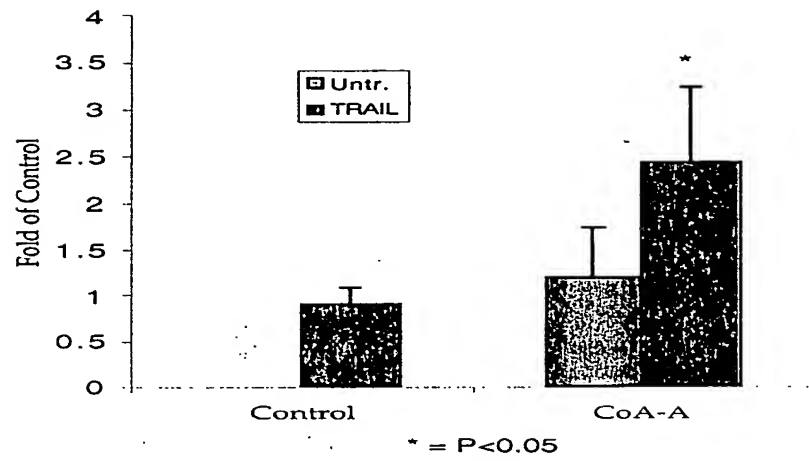


FIGURE 15A

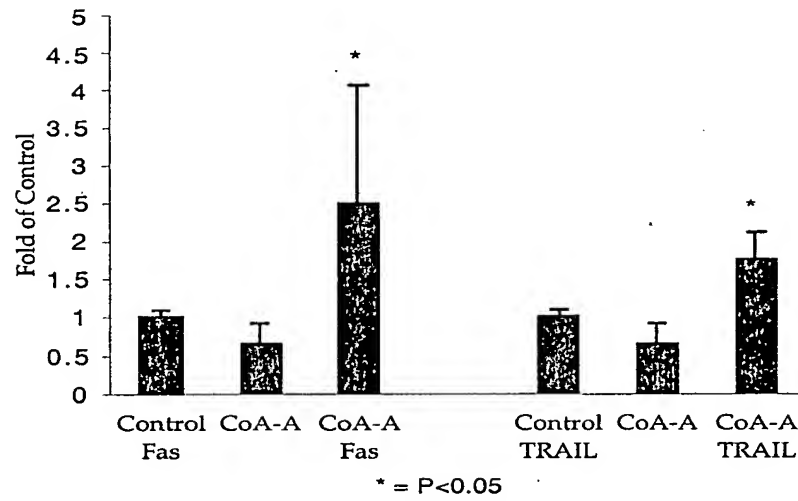


FIGURE 15B

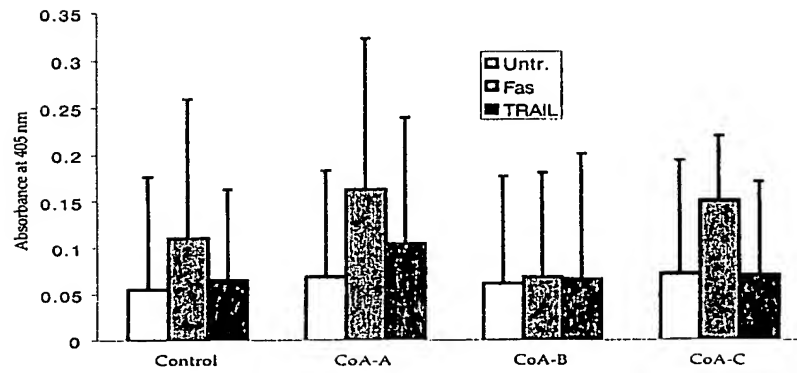


FIGURE 16

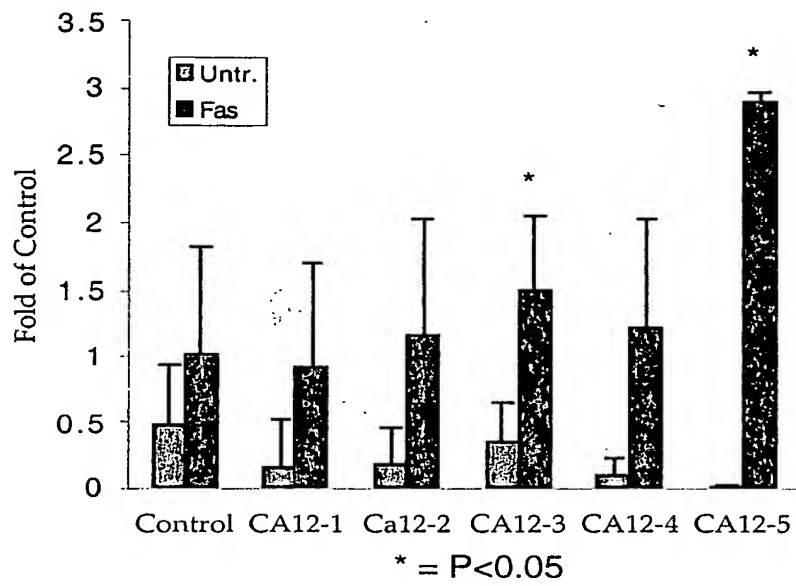


FIGURE 17A

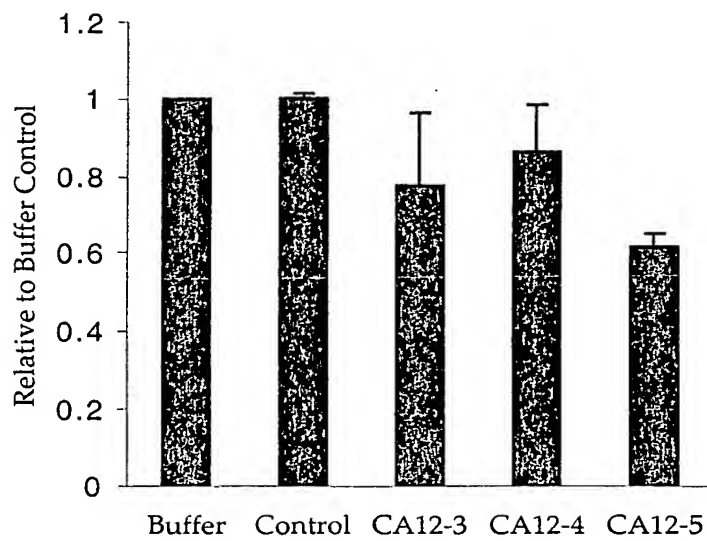


FIGURE 17B

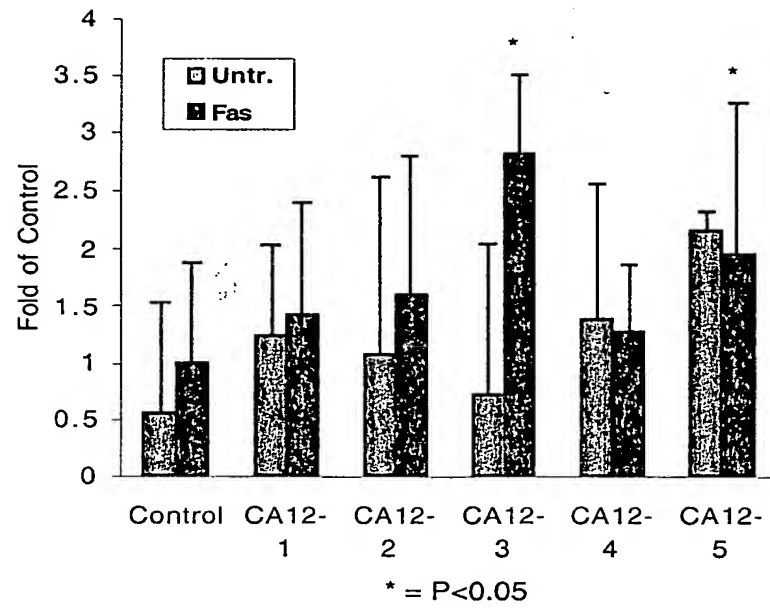


FIGURE 18A

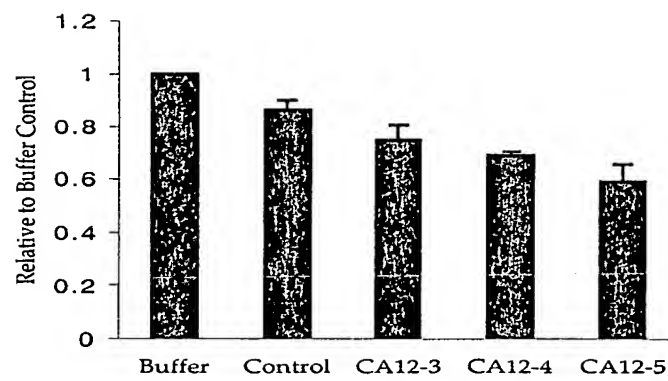


FIGURE 18B

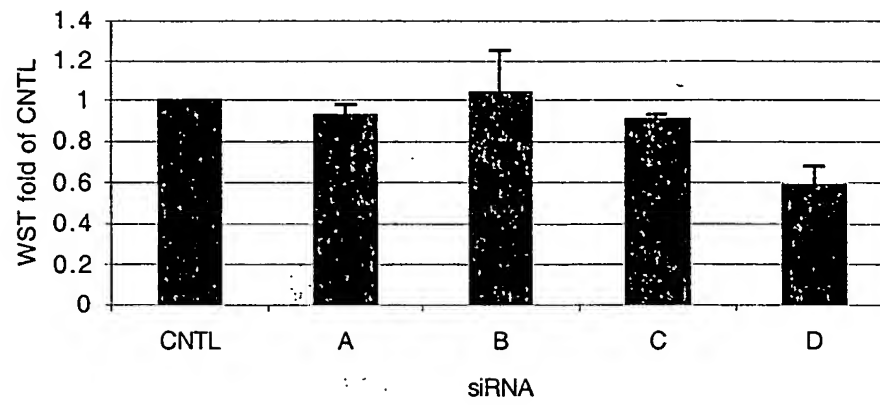


FIGURE 19

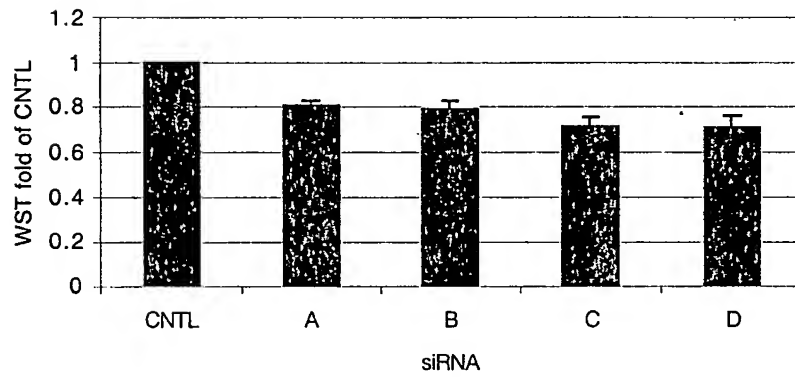


FIGURE 20A

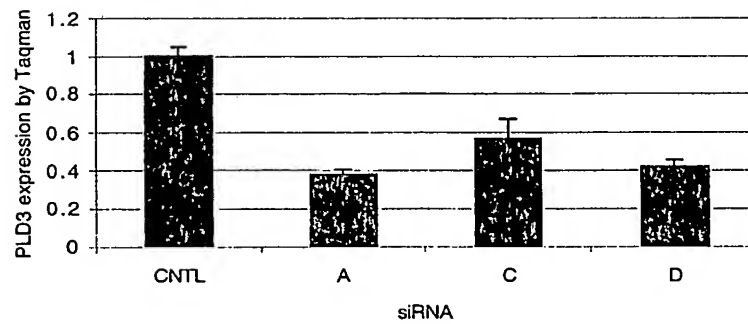


FIGURE 20B



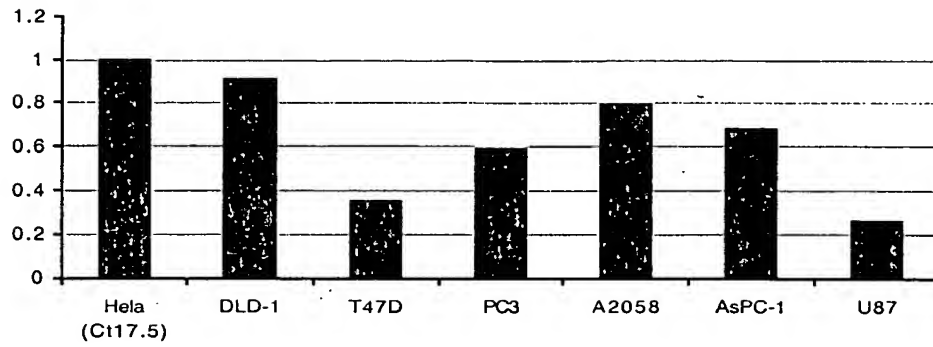


FIGURE 21

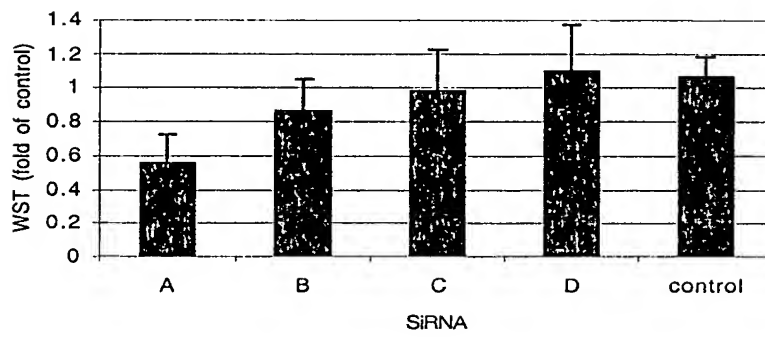


FIGURE 22A

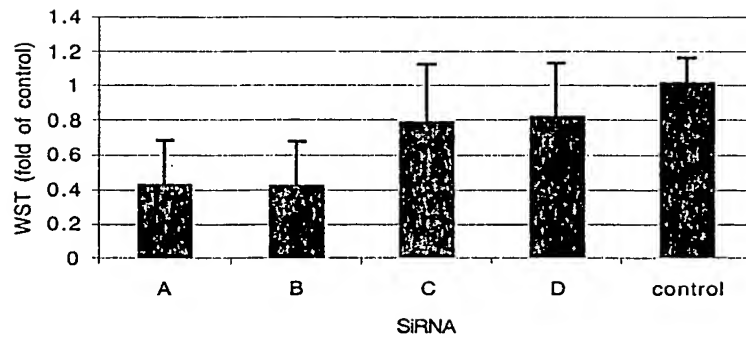


FIGURE 22B

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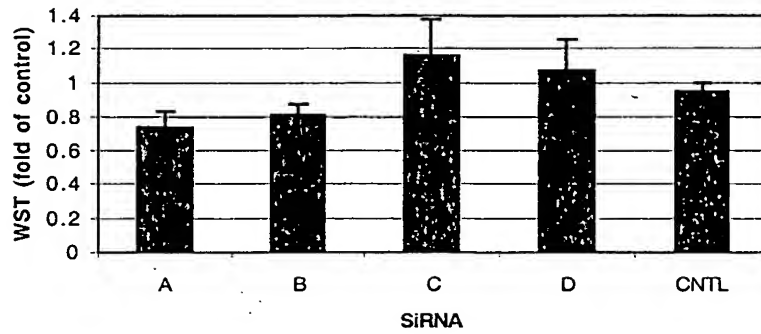


FIGURE 23A

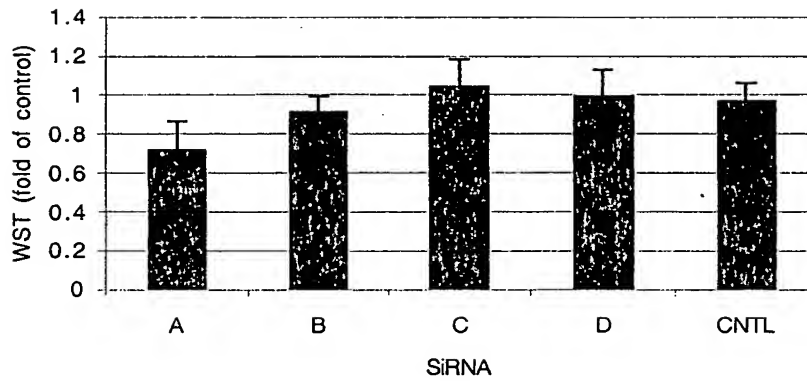


FIGURE 23B

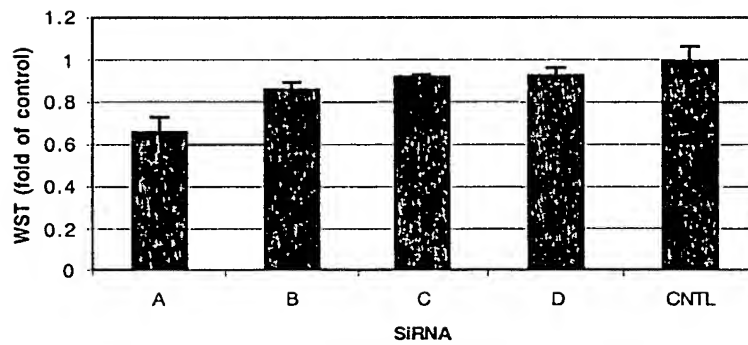


FIGURE 24

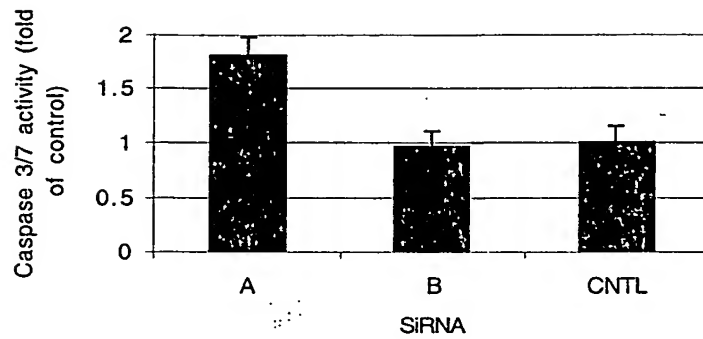


FIGURE 25

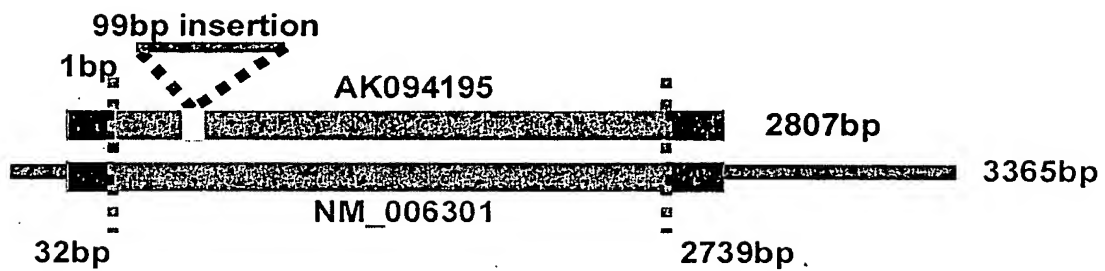


FIGURE 26

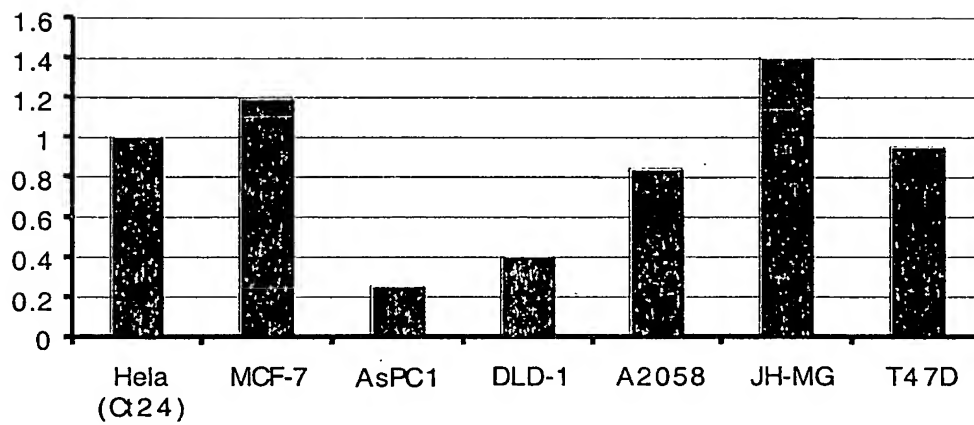


FIGURE 27

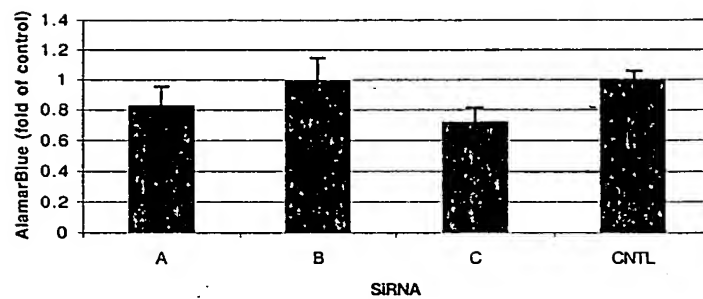


FIGURE 28A

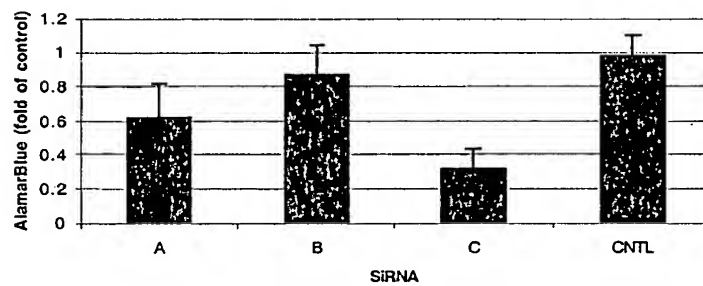


FIGURE 28B

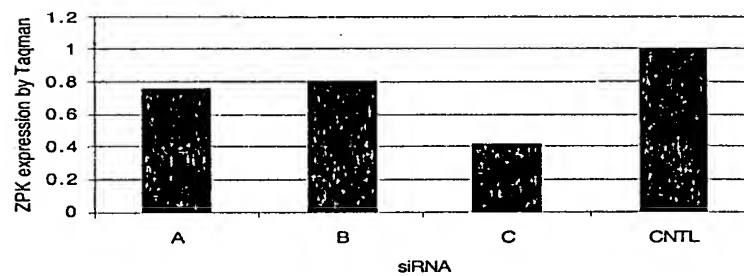


FIGURE 28C

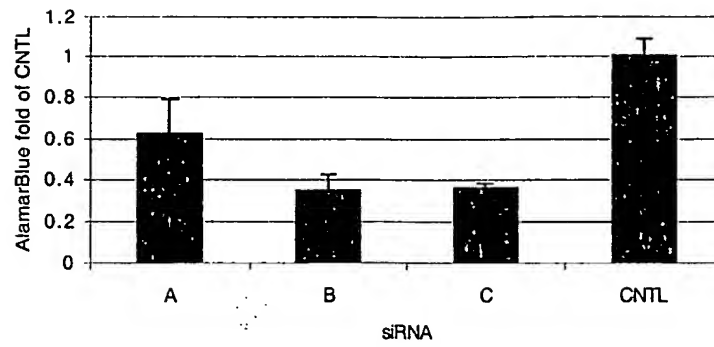


FIGURE 29A

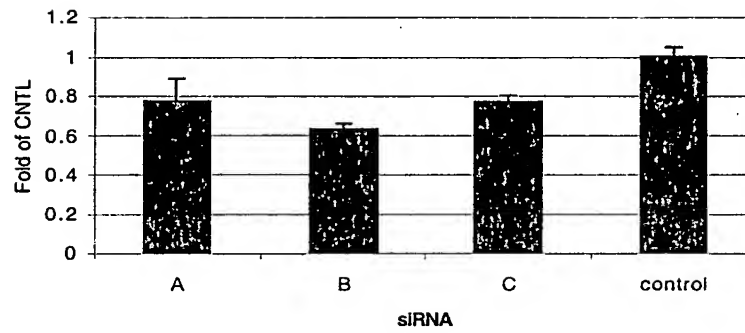


FIGURE 29B

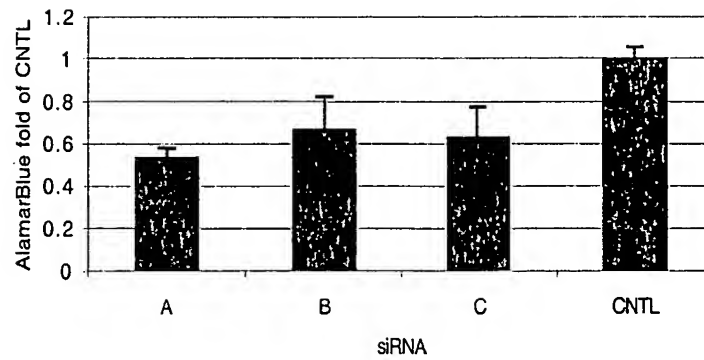


FIGURE 29C

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HCT116



FIGURE 30A

PC3M

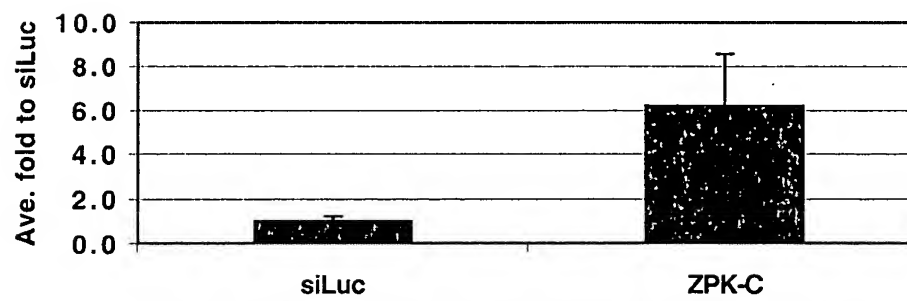


FIGURE 30B

MDAMB231

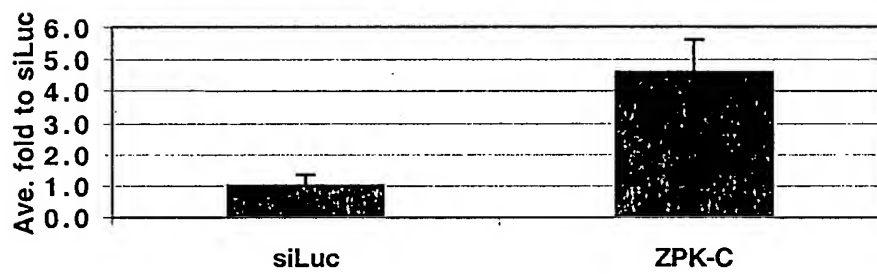


FIGURE 30C

## ZPK Variant 1 DNA Sequence (SEQ ID NO:13)

cttttgtgct	gcggccgcgg	agcccccgag	ggcccagtg	tcaccatcat	accaggggcc	60
agaggcgatg	gcttgccctcc	atgagacccg	aacaccctct	ccttcctttg	ggggctttgt	120
gtctacccta	agtgaggcat	ccatgcgcaa	gctggacca	gacacttctg	actgcactcc	180
cgagaaggac	ctgacgccta	cccagtggt	acttcgagat	gtggtacccc	ttggtgggca	240
gggtggggga	gggcccagcc	cctccccagg	tggagagccg	ccccctgagc	cctttgccaa	300
cagtgtcctg	cagctacatg	agcaggatgc	agggggccca	gggggagcag	ctgggtcacc	360
tgagagtcgg	gcatccagag	ttcgagctga	cgaggtgcga	ctgcagtgcc	agagtggcag	420
tggcttcctt	gagggcctct	ttggctgcct	gcgccctgtc	tggaccatga	ttggcaaagc	480
ctactccact	gagcacaagc	agcagcagga	agacctttgg	gaggtcccct	ttgaggaaat	540
cctggacctg	cagtgggtgg	gctcaggggc	ccagggtgct	gtcttcctgg	ggcgcttcca	600
cggggaggag	gtggctgtga	agaagggtgcg	agacctcaaa	gaaaccgaca	tcaagcactt	660
gcgaaagctg	aagcacccca	acatcatcac	tttcaagggt	gtgtgcaccc	aggctccctg	720
ctactgcate	ctcatggagt	tctgcgcca	gggccagctg	tatgaggtag	tgcgggctgg	780
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ctacgacgat	gtggtgaaga	tctcagattt	tggcacttcc	aaggagctga	gtgacaagag	960
caccaagatg	tcctttgcag	ggacagtagc	ctggatggcc	cctgagggtga	tccgcaatga	1020
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tggtgagatc	ccctacaaag	acgtagattc	ctcagccatt	atctgggggtg	tgggaagcaa	1140
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gtgctggaat	agcaaacccac	gaaatcgctc	atcattccga	cagatcctgc	tgcatctgga	1260
cattgcctca	gctgatgtac	tctccacacc	ccaggagact	tactttaagt	cccaggcaga	1320
gtggcgggaa	gaagtaaaac	tgcactttga	aaagattaag	tcagaaggga	cctgtctgca	1380
ccgcctagaa	gaggaactgg	tgatgaggag	gagggaggag	ctcagacacg	ccctggacat	1440
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cctcatgttg	cagctggaac	tcaaggagag	ggagctgctc	aggcgagagc	aagctttaga	1560
gcggagggtg	ccaggcctgc	tgaagccaca	cccttcccgg	ggcctcctgc	atggaaacac	1620
aatggagaag	cttatcaaga	agaggaaatgt	gccacagaag	ctgtcacccc	atagcaaaag	1680
gccagatata	ctcaagacgg	agtctttgct	ccctaaacta	gatgcagccc	tgagtgggggt	1740
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ccgtcaccgc	aaggccagcg	ccaaggggag	ctgtggggac	ctgcctgggc	ttcgtacagc	1860
tgtgccaccc	catgaacctg	gaggaccagg	aagcccaggg	ggcctaggag	ggggaccctc	1920
agcctgggag	gcctgccctc	ccgccctccg	tgggcttcat	catgacctcc	tgctccgcaa	1980
aatgtcttca	tcgtccccag	acctgctgtc	agcagcacta	gggtcccggg	gccggggggc	2040
cacaggcgga	gctggggatc	ctggctcacc	acctccggcc	cggggtgaca	cccaccaag	2100
tgagggctca	gccccctggc	ccaccagccc	agattcacct	gggggagcca	aaggggaacc	2160
acctcctcca	gtagggcctg	gtgaagggtg	ggggcttctg	ggaactggaa	gggaagggac	2220
ctcaggccgg	ggaggaagcc	gggctgggtc	ccagcacttg	accccagctg	cactgctgta	2280
cagggctgcc	gtcacccgaa	gtcagaaacg	tggcatctca	tcggaagagg	aggaaggaga	2340
ggtagacagt	gaagtagagc	tgacatcaag	ccagagggtg	cctcagagcc	tgaacatgcg	2400
ccagtcacta	tctaccttca	gctcagagaa	tccatcagat	ggggaggaag	gcacagctag	2460
tgaaccttcc	cccagtggca	cacctgaagt	tggcagcacc	aacactgatg	agcggccaga	2520
tgagcgggtc	gatgacatgt	gctcccagg	ctcagaaatc	ccactggacc	cacctccttc	2580
agaggtcata	cctggccctg	aacccagctc	cctgccatt	ccacaccagg	aacttctcag	2640
agagcggggc	cctcccaatt	ctgaggactc	agactgtgac	agcactgaat	tggacaactc	2700
caacagcgtt	gatgccttgc	ggcccccagc	ttccctccct	ccatgaaagc	cactcgtatt	2760
ccttgtagat	agagaaatat	ttatataaat	tatatatata	tacatat		2807

FIGURE 31

## ZPK Variant 1 Amino Acid Sequence (SEQ ID NO:14)

MACLHET RTP	SPSFGGFVST	LSEASMRKLD	PDTSDCTPEK	DLTPTQCVLR	DVVPLGGQGG	60
GGPSPSPGGE	PPPEPFANSV	LQLHEQDAGG	PGGAAGSPES	RASRVRADEV	RLQCQSGSGF	120
LEGLFGCLRP	VWTMIGKAYS	TEHKQQQEDL	WEVPFEEILD	LQWVGSGAQG	AVFLGRFHGE	180
EVAVKKVRDL	KETDIKHLRK	LKHPNIITFK	GVCTQAPCYC	ILMEFCAQQG	LYEVLRAGRP	240
VTPSLLVDWS	MGIAGGMNYL	HLHKIIHRDL	KSPNMLITYD	DVVKISDFGT	SKELSDKSTK	300
MSFAGTVAWM	APEVIRNEPV	SEKVDIWSFG	VVLWELLTGE	IPYKDVDSSA		350

FIGURE 32



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